Total No. of Questions : 8]

SEAT No. :

P3788

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[4960]-1306

M.E. (Computer Engineering)

APPLIED ALGORITHMS

(2013 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Answer any six questions.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Describe the important characteristics of an Algorithm. **[4]**

b) Explain the Best-case, Average-case, and Worst-case analysis of selection sorting algorithm. **[4]**

Q2) a) Explain Single source shortest path algorithm. **[4]**

b) Explain the Quadratic sorting algorithms. **[4]**

Q3) a) Design Prim's Algorithm for minimum spanning tree. **[4]**

b) Design Krushkal's Algorithm for minimum spanning tree. **[4]**

Q4) a) Which are different approximation schemes? **[4]**

b) Explain vertex cover problem as an example of approximation algorithms. **[4]**

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Q5) a) Describe the basic properties of Line, Intersection of Line and Line Segment. **[4]**

b) What is convex hall? Explain how convex hall is computed using Jarvis march algorithm? **[4]**

Q6) a) Explain the standard and slack forms of linear programming. **[4]**

b) Explain algorithm of Knapsack problem with suitable example. **[4]**

Q7) a) Define Expectation, Moments, and Variance and give significance of small and large variance. **[5]**

b) What are uncorrelated variables and transform methods? **[5]**

Q8) a) Explain Bay's rule with example. **[5]**

b) Explain applications of Binary search algorithms. **[5]**